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COMPUTER-SUPPLEMENTED STRUCTURAL DRILL PRACTICE
VERSUS COMPUTER-SUPPLEMENTED SEMANTIC DRILL
PRACTICE BY BEGINNING COLLEGE GERMAN STUDENTS:

A COMPARATIVE EXPERIMENT_

DISSERTATION

9/ Doct or thesis.

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate

School of The Ohio State University

By

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ABSTRACT

"Computer-Supplemented Structural Drill Practice Versus
Computer-Supplemented Semantic Drill Practice By Beginning
College German Students: A Comparative Experiment."

By Reiner Horst Schaeffer, Captain, USAF

1979 Ph.D. Dissertation in Foreign Language Education at The Ohio State University (114 pages).

This study investigated the effectiveness of two types of computer practice, structural and semantic, across two levels of verbal aptitude. The experiment was conducted at the United States Air Force Academy. Subjects (n = 72) were beginning college German students who had no previous high school language training. The cadets were randomly assigned to three groups: (1) Structural Practice, (2) Semantic Practice, and (3) No Practice (Control). Groups 1 and 2 practiced the same grammatical concept on the computer with structural and semantic exercises, respectively. A structural exercise could be accomplished based on knowledge of structure alone, while a semantic exercise's successful accomplishment

depended upon understanding of the meaning of the item/ problem; structure was a secondary consideration. The Control Group had no practice.

After the practice session, all three groups were administered a posttest (40 items) consisting of a structural and a semantic measure. Analysis of the data revealed a significant difference between the Semantic Group and the Structural Group on the semantic measure (p < .05). The Semantic Group also achieved the higher mean on the structural measure, though the difference in mean scores was not statistically significant.

The results of the study support previous research on the importance of meaningful (semantic) practice in the second-language learning process. It was also discovered that interpersonal interactions are not an explanation for the advantage observed for meaningful language practice in other experiments.

Dedicated to the United States Air
Force which, during my 20 years of
active military service, encouraged
and provided educational opportunities
ranging from a high school equivalency
certificate to a doctorate degree.

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ATIV

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction to the Problem

Underlying virtually all current principles of foreign language learning is the notion of meaningful learning. In general, meaningful learning is a manifestation of cognitively based learning theories. Because cognitive learning theories rapidly are replacing their behavioristic predecessors as major bases for educational research, the notion of meaningful learning has powerful implications. In foreign language education, the shift from behavioristic to cognitive learning theories has had its most dramatic effect on how the learner is viewed. The learner now is recognized as an active participant in the learning process rather than as a creature of habit to be stimulated and conditioned to learn. A very crucial and integral part of cognitive theory is its emphasis on meaning--"the single most important variable in human learning . . ." (Osgood, 1961, p. 91).

Meaningful learning, which simply means "making sense of the world" (Smith, 1975, p. 1), is related closely to communicative proficiency, the major goal of foreign language study in the past few years. Commenting on this relationship between communication and meaning, Goyer (1970) notes that communication is "the sharing of experience"; meaning is "a discriminative response to a stimulus, and provides the criteria for determining whether or not communication occurs in a given situation" (p. 4). According to Goyer's definition, then, meaning is a prerequisite to communication. Unless this sharing of experience is meaningful, there will be no communication.

Although the behaviorists and cognitive theorists do not agree on how learning takes place, they do agree that practice is an absolute necessity in the learning process. How this practice is viewed and approached, however, is a further point of disagreement among these theorists. As a result of this disagreement, an essential difference in foreign language learning involves the type of practice used.

Brooks (1964), who is often referred to as the "father" of the audio-lingual method of language

learning, for example, considers pattern drills the core of practice. According to Frey (1968), such drills basically serve as a primary means for teaching phonology, morphology, and syntax. In this role, their goal is to develop automatic, correct responses by the student. Thus, while these drills, as it is generally recognized, train students to manipulate or form syntactic structures, meaning is of little importance. Stated in other words, many of these drills can be completed by the student without attending to meaning. Meaning, at best, is optional.

Cognitive psychologists, such as Ausubel, and many foreign language educators (Rivers, 1976; Grittner, 1977) believe that practice should be meaningful. In addition to being meaningful, practice should incorporate the affective domain, which subsumes such subjects as the individual's personal experience, values, and feelings (Christensen, 1975). Some examples of meaningful practice activities are incomplete sentences such as "I am . . , I believe . . , My parents told me . . , I am happy that . . ." (Disick and Barbanel, 1974, p. 210). Other examples are sentence builders, matching and preference exercises

(Jarvis et al., 1976; Knorre et al., 1977; and Schulz et al., 1978). In contrast to pattern drills, all these meaningful activities focus primarily on meaning; application of structure is a secondary consideration.

Most foreign language educators today agree that there is a need for meaningful practice activities. Yet, what is found in most foreign language classrooms is "a preponderance of time . . . spent in either the mechanical 'manipulation' of language forms or in discussing the manipulation of these forms" (Jarvis, 1975b, p. 221). Indeed, textbooks, workbooks, and classroom exercises still contain an abundance of pronunciation drills, vocabulary drills, and particularly, structural drills (Paulston, 1970), despite research evidence attesting to the greater potential of meaningful and communicative practice.

One study providing research evidence in support of communicative activities was conducted by Oller and Obrecht (1968), who demonstrated in an experiment that "... the effectiveness of a given pattern drill is significantly increased by relating the language of that drill to communicative activity in the teaching/learning process" (p. 174). In two other studies,

Jarvis (1970) dealt with contextualized practice with particularized referents and practice with generic meaning, and Joiner (1974) with communicative and non-communicative practice. In both experiments, better results were achieved by the contextualized and communicative groups respectively. More empirical studies dealing with meaningful practice are, however, needed.

Theoretical Bases

Communication theory, to a large extent, provides the theoretical basis for this study. In its most primitive form, communication is the sending and receiving of messages. A more complex definition of this construct, communication, is provided by Goyer (1970). He notes that to communicate means "'to make common' (to share) experience, regardless of the nature of the experiential event, or the method of its transmission or projection" (p. 6). Common to any definition of communication is the notion of and emphasis on putting meaning across. In order to ensure that the message is understood, it must be meaningful. Yet, while there is an abundance of research concerned with meaning (Johnson, 1975), there is little empirical

evidence and few findings with which all authorities agree. Most educators and psychologists are in accord, however, that meaning is one of the most significant, if not the most important ingredient in the learning process.

Many of today's foreign language educators view language learning simply as learning how to communicate (Rivers 1976; Grittner, 1977). Before achieving communicative competence, however, the theory of language states that a student must internalize, by means of practice activities, some grammatical rules and some vocabulary (Clausing and Wood, 1974). The audiolingual method assumed that if students could manipulate forms, repeat with accuracy, complete transformations of sentences, and respond successfully to any kind of pattern drill, they would then transfer the training to the process of communicating effectively in the foreign language. This theory of language acquisition is in conflict with those proponents who follow Chomsky's reasoning and believe that deep structure precedes surface structure, meaning precedes grammar, and language develops from simple to complex patterns (Smith, 1975). Based on this theory, Sampson (1977)

maintains that fluency should precede accuracy in second-language acquisition. Some foreign language educators, who stress communicative rather than linguistic competence at the earliest stages of secondlanguage learning, share Sampson's view (Gaarder, 1967; Savignon, 1976). Research by Oller and Obrecht (1968), Chastain and Woerdehoff (1968), Jarvis (1970), and Joiner (1974) support the contention that practice activities can be more effective if they are meaningful and communicative. As a result of this thinking, many examples of meaningful exercises and activities have emerged in recent foreign language articles and texts for reading (Disick and Barbanel, 1974; Joiner, 1974; Christensen, 1975; Paulston and Selekman, 1976; Rivers, 1976; Birckbichler, 1977; Knorre et al., 1977; Schulz et al., 1978; and Jarvis et al., 1976, 1977a, 1977b, 1979).

In order to further this communicative trend in foreign language teaching, more empirical studies attesting to the effectiveness of meaningful practice are needed. Various media and strategies should be investigated to determine the effects of meaningful practice in a variety of instructional strategies.

One such medium is the computer, which can be found practically everywhere. It is used very little, however, in foreign language education. The basis for selecting media normally is determined by the intended learning outcome (Gagné, 1977) and cost-effectiveness (O'Neil et al., 1976). Thus, the computer has been chosen by many educational institutions primarily for drill and practice activities for which, according to computer experts, it seems to be best suited (Walton, 1970; Allen, 1971; Nelson et al., 1976).

In reviewing the literature, however, it becomes evident that the computer's potential and possibilities in foreign language education have not been fully explored. Although combining computer technology with practice in foreign language education is not new, the effectiveness of the type of practice activities using this medium has not been tested.

Statement of the Problem

The purpose of this study is to compare the effectiveness of two types of computer practice, structural and semantic, in developing the students'

reading and writing skills. Specifically, this research deals with the following questions:

- 1. Is the ability to identify and manipulate a grammatical structure influenced by the type of practice activity; i.e., structural versus semantic?
- 2. Does the verbal aptitude variable interact with the task variable in terms of student learning?

Operational Definitions

Defining complex concepts for research purposes is often an arduous task. Mortensen (1972) notes that if a concept is defined too broadly, it loses value as an object of study, and if it is defined too narrowly, it may be of inconsequential concern. Many terms in foreign language education are unfortunately not defined precisely enough and thus may present a major obstacle to the researcher who intends to manipulate such variables in an experiment. To avoid imprecision in defining the independent variable, this investigator reviewed drills and exercises contained in 25 basic college German textbooks (published between 1965 and

1978). The following two questions were asked in order to distinguish between two types of drills, "structural" and "semantic," the practice variables in this study.

- 1. Is knowledge of structure alone sufficient in solving the task/problem?
- 2. Is attending to meaning a prerequisite to structural application in solving the task/ problem?

A <u>structural drill</u> is defined as a drill that can be accomplished by a student based solely on knowledge of the structure alone. Thus, while structural knowledge is essential in such a drill, meaning is optional. Whether or not a student attends to meaning in such a drill is not known. A cue is normally given to the student in a structural drill; i.e., a simple change is required (change of tense, change of noun to pronoun, etc.). If the personal "I" or possessive adjective "my" are used in such a drill, they are not different from "he," "her," or "we"; they simply represent a structural part of the drill and, except by chance, have no personal reality or relevance to the student. (See Appendix B-2.)

A <u>semantic drill</u>, on the other hand, is defined as a drill that cannot be accomplished by a student unless the meaning of the items is understood. Meaning is first and foremost, whereas structure is a secondary consideration. A semantic drill should have a meaningful context based on the students' life experiences. (See Appendix B-3.)

Significance and Assumptions of the Study

In the past, many studies in foreign language education have dealt with global methods. According to Jakobovits (1970), these broad methodological comparisons have not yielded very useful insights because they tend to consist of several classroom activities, many of which are made up of undefined and unobserved variables. For this reason, Jakobovits believes that detailed studies of specific language procedures may provide more useful information on effective teaching approaches. Such detailed empirical studies on communicative and meaningful language practice have been pursued by Jarvis (1970), Joiner (1974), Birckbichler (1975), and Knorre (1975). It is hoped that this experiment will add to the results of these studies

and provide more insight into the effects of meaningful practice. More specifically, it is hoped that the present study will reveal some information on the usefulness of the computer as a practice medium. It is further believed that this research may have implications for the development of learning materials for practice in and out of the classroom.

The computer, the practice medium, cannot be viewed as a complete self-contained means of instruction because ". . . discussion and pupil-pupil and pupilteacher interaction are essential for learning" (Ausubel, Novak, and Hanesian, 1978, p. 387). As an adjunct to classroom instruction, however, the computer seems to be well-suited for drills and language practice, especially in the reading and writing skills. The main advantages of the computer as a driller, according to most CAI writers, are pace, sequencing of material, immediate correction and feedback, actual involvement, diagnostic ability, convenience and scheduling (Ornstein, 1968; Suppes and Jerman, 1970; Allen, 1972). The computer's greatest weakness, on the other hand, is its ineffectiveness (at least at present) to deal with the spoken language (Nelson et

<u>al</u>., 1976). This limitation, however, has no impact on this investigation because it deals with practice of reading and writing skills only.

Although there is very little research in foreign language education on the effectiveness of computer-assisted instruction, the computer seems to show great promise. The lack of research may be explained by the fact that many foreign language educators consider the computer inappropriate for meaningful and communicative activities. This study is an attempt to test this claim.

Limitations of the Study

The following limitations of this study should be kept in mind.

1. Grammatical Concept: The grammar principle to be practiced in this experiment is limited to the present perfect tense of weak verbs. Thus, only replication of this study with different grammatical concepts (such as the future tense, modal auxiliaries, preposition, etc.) would show if the same or similar results would be achieved.

- 2. Complexity of Exercises: The types of exercises that could be created for this study were considerably restricted by the limited vocabulary of the beginning German students (at the time of the experiment, the students will have completed one-half semester of German language study only). Because of this vocabulary limitation, both structural and semantic computer exercises deal with simple, short drills. For more advanced foreign language students, however, the complexity and variety of these exercises could be expanded commensurate with the level of language knowledge.
- 3. <u>Computer Novelty</u>: Because computer practice is not an integral part of normal classroom instruction at the Air Force Academy, the novelty of working with the computer for this experiment may be a relevant factor.

 To some extent, the learning outcome may be attributed to the novelty of using the computer rather than to the specific type of practice.

CHAPTER II REVIEW OF THE LITERATURE

Introduction

The greatest change in foreign language education in recent years can be seen in the movement from a teacher- to a learner-centered approach. The best evidence of a teacher-centered approach was the audiolingual classroom, where the teacher served as a model for the students, provided stimuli, reinforcement, and feedback. The audio-lingual method of teaching, which followed the behaviorists' and descriptive linguists' theories that learning is basically a process of conditioning, placed primary emphasis on linguistic competence. Linguistic competence, or what Rivers (1973) refers to as "skill getting," entails the gaining of knowledge of units, categories, and purposes in the areas of the sound system, vocabulary, and structure. In other words, grammar was at the core of the language program.

While the audio-lingual method of teaching may be classified as teacher-centered, today's humanistic movement favors a student-centered approach. This focus on the student is deeply embedded in cognitive theories of learning, which view the learner as an active and creative participant in the learning process. A very powerful factor in this learning process is the student's existing cognitive structure. As Ausubel (1968) puts it:

If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly (Preface, no page number).

The degree to which a student's cognitive structure (store of knowledge) influences the learning process is the degree to which the to-be-learned material is meaningful. Meaningful learning is assumed to take place when the learner attempts to integrate newly learned material with what is already known (Ausubel, 1968). Since there would be no real point in language without meaning (Clark and Clark, 1977), the notion of meaningful learning is closely related to the present goal of communicative competence in foreign language teaching.

Communicative competence--"The ability to receive, understand, and produce suitable and comprehensible messages" (Zelson, 1976, p. 19)--depends on meaning. If there is no meaning, there is no communication.

Although there are distinct differences in how learning is viewed by the behavioristic and cognitive theorists, proponents of both camps agree that practice is at the core of any language program. As Jarvis (1978) notes: "We learn what we practice, what we experience, what we do" (p. 672). Practice, which is a rather general term, normally refers to most in- and out-of-class activities in foreign language learning. It subsumes such terms as "drill," "exercise," and "activity." Although some authors distinguish between drill and exercise (Stevick, 1976) or drill and activity (Chastain, 1970), others do not (Rivers, 1964, 1976). Thus, these terms seem to be interchangeable. Miller and Swick (1976), for example, define the purpose of a drill "to extend, reinforce and refine a student's capabilities to do specific mental/or physical performance" (p. 26). The same statement of purpose would obviously apply if the terms "exercise" or "activity" were used instead of "drill."

Behaviorists and cognitive theorists agree that practice is an essential and crucial variable in the learning process. They disagree, however, about the type of practice. Supporters of the audio-lingual method, for example, view language learning as habit formation through conditioning and drill. They believe that continuous mechanical manipulation of vocabulary and grammatical structures will lead to language proficiency. To reach this goal, they rely heavily on pattern drills as the primary means of practice. Most of these drills focus on phonology, morphology, and syntax. Although meaning is not specifically stressed in these drills, many foreign language teachers assume that students automatically attend to meaning when performing a task. Hosenfeld (1976) has shown in an experiment, however, that this hypothesis does not always hold true.

Cognitive theorists of learning, on the other hand, stress the concept of meaningful practice. Because the purpose of practice "is to increase the stability and clarity and hence the dissociability strength, of the emergent new meanings in cognitive structure"

(Ausubel, Novak, and Hanesian, 1978, p. 311), it

must focus on meaning. Reflecting on the significance of meaning while practicing, Carroll (1974) advises foreign language learners that "It is important whenever possible to remember the meanings conveyed by the foreign language and to think of these meanings while practicing" (p. 143). Thus, if language is viewed as a meaningful system, it follows that meaning should be present at all stages of language practice (Woodsworth, 1973). The development of each practice activity must, therefore, incorporate this concept. A meaningful activity, then, is one in which the processing of meaning is essential to the successful completion of a task, and the application of morphology and syntax (structure) assumes a subordinate role.

Despite this emphasis on meaningful learning/
practice and the concern for developing communicative
abilities in second-language learners, a discrepancy
exists between these cognitive theories and what is
found in the foreign language classroom. In many classrooms attention continues to be given to linguistic
competence at the expense of student motivation, humaneness, and proficiency itself (Zelson, 1976). One
reason for this attention to linguistic competence

may be due partially to the content of many existing textbooks. Ten years ago, for example, pattern drills were found in every textbook, and such drills often constituted the main part of exercises (Mathieu, 1968). This assessment holds true even today. Most of today's foreign language texts and workbooks still contain innumerable structural activities that concentrate on phonological, morphological, or syntactic processing. The existence of such structural drills is an apparent carry-over from the days of the audio-lingual method of teaching. Since then, foreign language education theories have moved away from this manipulation of vocabulary and structure, but the content of many texts has lagged behind these changes toward communicative and meaningful activities. Exceptions to the more traditional textbooks are foreign language readers by Knorre et al. (1977) in Spanish, Schulz et al. (1978) in German, and Jarvis et al. (1976, 1977a, 1977b, 1979) in French. These references, as well as a method text by Allen and Valette (1977), contain excellent examples of meaningful and communicative activities, such as rank order or preference exercises, opinion polls, dehydrated sentences, paragraph completion, personalized questions, and interviews.

Related Research

In order to continue the development of meaningful learning materials and to gain further insight into
the effectiveness of meaningful practice, additional
research is needed comparing various practice activities
in experiments using varied media in different types of
learning situations. The following studies have emerged
in the past few years and empirically support the hypothesis that practice that emphasizes meaning with
situational referents seems to be superior to manipulative practice.

Chastain and Woerdehoff (1968), for example, made broad comparisons of practice based on the audio-lingual theory and practice based on the cognitive-code learning theory. One of the findings was that "... drills stressing understanding were superior to pattern practice" (p. 279). In another experiment, Oller and Obrecht (1968) found that "... the effectiveness of a given pattern drill is significantly increased by relating the language of that drill to communicative activity in the teaching-learning process" (p. 174).

The present research is primarily influenced by an experiment conducted by Jarvis (1970) from which he

concluded that contextualized practice with particularized referents produced better results than practice with generic meaning in speaking and writing skills. Since this experiment, Jarvis (1975a, 1976, 1978) has published various articles dealing with meaningful learning, and Jarvis et al. (1976, 1977a, 1977b, 1979) have applied these findings in designing French readers that contain no pattern drill exercises but only meaningful activities.

Building on Jarvis' (1970) results, Joiner (1974) conducted an experiment distinguishing between communicative and non-communicative oral practice in beginning college French. According to Joiner, a communicative practice requires student control of both the content and the expression of the utterance. The utterance must also add new information. Non-communicative practice, on the other hand, includes various types of pattern drills, questions with cued responses, comprehension type questions on assigned reading, and situational questions such as "Where is the book?" While oral communication was the major concern of the investigation, Joiner also tried to determine the effects of the two treatments on all language skill areas and

on attitude. The findings indicated that students placed in the communicative group significantly outperformed those whose practice was non-communicative on a test of communicative proficiency that contained tasks of describing, reporting, and interviewing. Her results support the inclusion of communicative practice in overall instructional strategy if communicative proficiency is a course goal.

Three other studies dealing with communicative skills and competence were done by Savignon (1972), Bartz (1974), and Schulz (1974). Savignon (1972) attempted to develop tests to measure the effectiveness of communicative skills. The students who practiced with specific communicative activities scored significantly higher on the test of communicative competence than those in the audio-lingual program. Concentrating also on the testing aspect of communication, Bartz (1974) and Schulz (1974) examined student performance on linguistic and communicative tests in listening comprehension, speaking, reading, and writing using their own constructed tests in German and French respectively. Their studies showed that while linguistic and communicative competence are related, they are two different constructs.

In two separate but similar experiments, Birck-bichler (1975) and Knorre (1975) examined the effects of second-language learning tasks requiring various types and levels of processing (morphological-syntactic and semantic) on measures of student learning. Although few significant differences were discovered beyond the .05 level by these researchers, the reasons for this lack of differences may be attributable to the possibility that the subjects with the morphological-syntactic (non-semantic) tasks may not have eliminated semantic processing completely. A longer treatment phase and a more sensitive criterion instrument might have yielded differential effects on the processing variable.

Another experiment related to this research was conducted by Hosenfeld (1976) in which students were asked to "think aloud" while completing fill-in exercises. Hosenfeld found that some students relied on morphological-syntactic information only to complete the task rather than processing the meaning of the sentence. The experiment seems to show that some students will do only what is absolutely necessary to complete a given task. If the task requires processing

of meaning as a prerequisite to structural application, however, the student can no longer bypass meaning in completing the task.

The above studies dealt with various forms of meaningful or communicative language practice in the classroom. The present study is an attempt to extend this line of research and to compare the effectiveness of two learning tasks, structural and semantic, with learning outcome. In order to gain more insight into varied practice media, the computer, which the literature heralds as an excellent practice medium, was selected for this experiment.

The Computer as a Practice Medium

The first commercial computer began operation in the Census Bureau in 1951 (Suppes and Jerman, 1970).

Since then, the computer has become an absolute necessity in science, government, business, and education.

While educational institutions have primarily taken advantage of the computer in administrative operations, its increased use as an educational medium is evidenced by the many computer-managed instruction (CMI) and computer-assisted instruction (CAI) programs in such

institutions. In foreign language education, as well as in other disciplines, the potential of the computer has not yet been explored thoroughly.

The most extensive experimentation in applying CAI to the teaching of foreign languages has been done by the Thomas J. Watson Research Center of the IBM Corporation (Ornstein, Ewton, and Mueller, 1971). best known and at the present time probably the most advanced computer-based instructional system, however, is the University of Illinois' Programmed Logic for Automatic Teaching Operations (PLATO) (Curtin et al., 1976). Ausubel, Novak, and Hanesian (1978) refer to PLATO as the most 'spectacular' CAI development (p. 386). PLATO, which utilizes a high-speed digital computer as the central control element for teaching a number of students simultaneously, has been used since 1960 to teach in at least 20 fields including Chinese, French, German, Italian, Japanese, Latin, Russian, and Spanish (Scanlan, 1971; Grundlehner, 1974; Allouche and Ervin, 1976). There are also many other universities and even high schools that have used or are still using some form of CAI in various languages (Ruplin and Russell, 1970; Turner, 1970; Lipton, 1972; Ruplin, 1973; Haas, 1979).

The complexity of computer configurations for an instructional terminal varies. The simplest, most often used configuration is a teletype machine or electric typewriter connected by telephone line to a computer (Arendt, 1972). A more complex system, such as PLATO, consists of a plasma display panel (video screen), a typewriter keyboard connected to the computer, a slide projector, an audio selector, and a judging system (syntactic, lexical, and orthographical correctness of sentences).

In the widest sense, computer-assisted instruction refers to any application of the computer to teaching (Allen, 1972). Authors normally distinguish between four basic approaches in the instructional process:

(1) drill and practice, (2) tutorial, (3) problemsolving, and (4) simulation (Edwards et al., 1974).

The first two modes, drill/practice and tutorial, are commonly addressed in the foreign language literature. While a tutorial program assumes the burden of instruction, the drill and practice program is supplementary to the regular curriculum. In lieu of the term computer-assisted instruction, the term computer-supplemented instruction (CSI) will be used in this

dissertation. This term more aptly describes the function of the computer as an <u>adjunct</u> to classroom instruction. It must be emphasized that neither this researcher nor most foreign language educators and authors view the computer as a replacement for the classroom teacher. In fact, Ornstein (1968) states that virtually no successful program today makes any attempt to dispense altogether with human intervention.

The present study deals with the application of the computer in drill and practice activities. According to Reinert (1974), drill functions during the past two decades increasingly have been turned over to various machines, the computer being the newest and most promising. Ellis (1974) reports that drill and practice account for most of the use of computers in education. Research by Edwards et al. (1974) confirms this statement. They found in a comprehensive study on the effectiveness of CAI that drill and practice is the most consistently effective mode of CAI, especially in mathematics. The same assessment is also held by many authors reporting on foreign language CAI programs (Adams, Morrison, and Reddy, 1968; Alpert and Blitzer, 1970; Allen, 1972; Bell, 1974; Clausing and Wood, 1974).

The types of drill practice/exercises in foreign language education commonly found in a CAI program are either similar or the same as those in textbooks and workbooks. As Dyer (1976) puts it: "The most common form of CAI today remains the 'automated' textbook" (p. 56). These drills, especially at the elementary level, are simple and short rather than complex, and mono- rather than multi-structural. The types of drill most often found in CAI programs are substitution, transformation, response, and translation. The typical drill presents a series of problems, teaching, reinforcing, and testing one specific grammatical point; i.e., verb conjugation, negation, or questions (Clausing and Wood, 1974). Thus, as is the case with textbooks and workbooks, the majority of computer drills are structural rather than semantic or meaningful.

The literature notes many advantages of the computer. Edwards et al. (1974) report that studies consistently show that increased achievement results from the use of CAI as a supplement to traditional instruction. These authors further have found that learning time can be compressed through CAI, that CAI seems to be more effective for low-ability students, and

that boys tend to favor CAI more than girls. studies reviewed by Edwards et al. (1974), both students and teachers liked CAI except when there were hardware problems. CAI also provides more interaction between student and computer than takes place between student and teacher in a traditional classroom (Rosenbaum, 1969). Erickson (1972) and others found that students using the computer are highly motivated. The computer allows them to work at their own pace, does not correct them in front of their peers, is very organized, and provides an individualized and even personalized approach to learning. More than 90 percent of the students surveyed by Scanlan (1971) would recommend CAI to others. Haas (1979) and Taylor (1979) report similar results based on a survey conducted at The Ohio State University.

Another significant advantage of the computer is the "time-saving" feature. In correcting and providing feedback directly to the student, the teacher is relieved from this very time-consuming process. Yet, the teacher can periodically request print-outs to determine student progress and identify possible problem areas. The extra time gained by the teacher

can then be used in the classroom for communicative and creative activities.

The greatest weakness of the computer (at least at present) is that it cannot effectively deal with the spoken language (Nelson et al., 1976). Although some progress has been made in this direction, results so far have not been very encouraging. If the computer is used to practice reading and writing skills, however, as proposed in this study, then the classroom is freed for additional practice in the oral/aural skills.

CHAPTER III STUDY DESIGN AND PROCEDURE

Design of the Experiment

The experimental design selected for this study is a modified version of the "Experimental Group-Control Group: Randomized Subjects" (Kerlinger, 1973, p. 331) using two experimental groups and one control group.

$$X_1$$
 Y (Experimental)
$$X_2$$
 Y (Experimental)
$$X_2$$
 Y (Control)

Kerlinger (1973) describes this design as probably the "best" for many experimental purposes (p. 331) due to its internal validity (control for history, maturation, testing, etc.). Externally, the major weakness of this design is its limited generalizability.

A 3 X 2 factorial design was used. The first independent variable, the practice variable consisted of three levels: (1) computer-supplemented structural practice, (2) computer-supplemented semantic practice,

and (3) no practice. The two types of computer exercises, structural and semantic, embodied a grammatical concept (present perfect tense of weak verbs) and vocabulary that form part of the regular German 132 curriculum at the United States Air Force Academy (USAFA). The second independent variable, the aptitude variable, consisted of two levels, high and low aptitude (split at the median) and was based on the verbal score attained by each subject on the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The dependent variable, a multiple-choice/completion test, was designed to test and compare the effects on learning by practicing with structural exercises versus practicing with semantic exercises. The dependent variable was composed of two subtests: (1) a structural measure and (2) a semantic measure, each of which consisted of 10 multiple-choice and 10 completion items.

		
Table 1. 3 X 2 Factorial De	sign	
	Apti	tude
Experimental Groups	High	Low
A - Computer Practice/ Structural		
B - Computer Practice/ Semantic		
C - Control/ No Practice		

Population and Sample

The study was conducted at the United States
Air Force Academy in Colorado Springs, Colorado during
the Spring 1979 Semester. The reasons for selecting
the Academy as the experimental site were many. First,
USAFA maintains a complete data bank of each cadet's
background; i.e., entrance examination data, placement
test scores, high school ranking, etc. Second, as
part of the core curriculum, each cadet must complete
four and one-half semester hours in a foreign language

unless this requirement is satisfied by a placement test. Thus, most cadets take a language course because they are required to and therefore may be less motivated than volunteers. Third, the cadets represent a student body drawn from all 50 states, a unique situation. Fourth, the course content, including exercises, homework assignments, etc., is identical for all students in German 131 and 132.* Fifth, the Academy provides excellent facilities and has sufficient computer terminals for such an experiment. Sixth, the support and cooperation of faculty and staff at the Air Force Academy facilitated the study. Finally, the results may be generalized to the sister service academies, the United States Military Academy and the United States Naval Academy.

Of the total population of 142 students (10 sections) enrolled in German 132, 74 students, the

^{*} German 131 is designed for (1) students who either have had no prior German language training or (2) students who had some German language training in high school but failed to qualify for German 141, the basic intermediate language sequence, based on a placement test score. German 131 meets during each Fall Semester for one hour every other day (one and one-half semester hours credit). German 132 follows German 131 in the Spring Semester, and classes meet every other day for two hours (three semester hours credit).

sample in this study, have not had previous German language training in high school, nor have they had any exposure to a second language. Two of the 74 subjects resigned from the Academy prior to the administration of the experiment, leaving a final sample of 72 students. This experiment dealt exclusively with these untrained subjects.

Procedure and Implementation

In order to obtain treatment-by-aptitude interaction in this experiment, the 72 subjects were blocked at the median by high and low aptitude based on either SAT or ACT verbal scores. The verbal score on one of these instruments was chosen because such a score is readily available. Each cadet must take either the SAT or ACT (some students take both tests using the higher score) as part of the entrance requirement at the Academy. Although the Modern Language Aptitude Test (MLAT) is frequently administered to determine language aptitude, rigidly controlled student time at USAFA prevented giving this test to the subjects. To administer the short form (3 parts) of the MLAT, for example, would have required 50

minutes of class-time, a considerable time block in the language program.

Subjects in each aptitude group (\underline{n} = 36) were randomly assigned to Experimental Group A (Structural), Experimental Group B (Semantic), and Control Group C (No Practice). From the high-aptitude group (\underline{n} = 36), 12 subjects were randomly assigned to Experimental Group A, 12 to Experimental Group B, and 12 to the Control Group. The same process applied to the low-aptitude group.

Since this experiment involved practicing a grammatical concept subsequent to its introduction in the classroom, it was important that all students in the experiment be taught essentially the same structures and vocabulary. Although instructor styles and teaching approaches vary, USAFA has identical student study guides (same content, objectives, etc.) for all cadets enrolled in German 131 and 132. In order to expose the students to different teaching styles, instructors change classes after the first half of each semester. Students enrolled in German 131, for example, have had at least two different teachers during that semester (in some cases even three or more

due to illness, official absences, or temporary duty of instructors).

Prior to selecting the specific grammatical concept as the practice variable, this researcher estimated that early February 1979 would be a feasible time frame for the actual experiment in terms of completing all computer exercises, criterion measurements, and pilot study. Since the present perfect tense of weak verbs was scheduled to be introduced at the Academy during that period, this grammatical concept was chosen as the practice variable. The present perfect tense, furthermore, is normally introduced and discussed at the Academy at a time when the students are able to communicate in basic sentences. In fact, it is nearly impossible to communicate without using the present perfect tense. The students participating in this experiment benefited from the practice session because this grammatical structure was part of the regular curriculum sequence and thus a function of the departmental goals. Since the natural class environment was not disturbed, validity in terms of classroom instruction was achieved.

The scheduling of the subjects for the practice session on the computer was a complex process. Half of the 10 German 132 classes meet on "M" days (five sections every other day starting with the first day of the semester) and the other half meets on "T" days (also five sections every other day starting with the second day of class). Because the subjects for this experiment represented all German 132 students who had not had any previous language training, each one of the 10 classes had at least some subjects participating in the experiment. Thus, the introduction, practice, and posttest could not take place for all students on the same day and at the same time. The experiment was, therefore, extended over a four-day period: two days (M and T) for the classroom introduction of the grammar concept and two days (M and T) for the practice session and the posttest. It was decided to retain a larger sample (n = 24 for each group) and accept the staggered time table rather than use a very small n for each group to complete the experiment in one session.

The present perfect tense of weak verbs was introduced in Block III. German 132, on February 1 and

2, 1979. The students' assignment for these dates was to read a brief introduction to this concept on page 171, Chapter 8, <u>Deutsch heute</u>: <u>Grundstufe</u> (Moeller and Liedloff, 1974), the basic text for German 131 and 132. A further assignment was to read page 96, which introduces the same concept, in <u>German Grammar</u> - <u>Schaum's Outline Series</u> (Gschossmann, 1975), another required text for German 131 and 132. (See Appendix D-1.)

Although the classroom presentation on February

1 and 2 was the first formal introduction to the present perfect tense, it is realized that the students

already may have been exposed to this concept passive
ly in German 131 or 132 as a result of instructor talk.

It was felt, however, that such informal usage would

not have a significant effect on the outcome of the

experiment since this structure was not formally dealt

with, and students were never asked to provide it.

For maximum uniformity, the presentation of the present perfect tense of weak verbs to all 10 classes of German 132 was made by the same instructor over a two-day period (five sessions per day). This instructor is an Air Force officer who possesses a Ph.D. in

Foreign Language Education and has had four years of teaching experience at USAFA. The grammar introduction for each class required approximately 15 minutes. The content in all cases was identical. To avoid interference with uncontrolled practice after the classroom presentation, all subjects in the experiment were asked not to study on their own until after completion of the experiment. Following the introduction of the grammatical concept, the subjects were orally instructed on the general use of the computer terminals and given a handout summarizing the most important points to remember when using a terminal. (See Appendix D-2.)

Subsequent to the introduction of the present perfect tense in the classroom, each subject of experimental groups A and B practiced these concepts on the computer during the next scheduled German class period (one of 10 sections on February 5 and 6).

Group A practiced with structural and Group B with semantic exercises. While the experimental groups were practicing, the Control Group was administered the criterion measurement in the classroom. Upon completion of the test, the Control Group was allowed to review and practice the same grammar concept using handout exercises.

The Practice Variable

The practice variable consisted of two separate computer practice exercises, structural and semantic. (See Appendix B and Operational Definitions.) To review these concepts briefly, a structural exercise is a drill that can be accomplished by simply relying on; knowledge of structure. Meaning is optional. A semantic drill, on the other hand, cannot be executed unless one understands the meaning of the item/problem. in the latter drill, meaning is a primary and structure a secondary consideration. Each exercise, structural and semantic, was composed of five practice categories, arranged from easy to more difficult. Each category contained certain tasks relating to the present perfect tense of weak verbs. While structural drills simply required a change of structure (change of infinitive to the past participle, change of a sentence from the present tense to the present perfect tense, etc.), the semantic exercises required the student to choose from a list of verbs or phrases and then make meaningful sentences in the present perfect tense. In order to avoid any bias in the two practice instruments, the two exercises were matched as closely

as possible in terms of the chosen vocabulary. At the time of the experiment (February 5 and 6), the subjects had studied a total of 35 weak verbs and 142 nouns. (See Appendix A-2.) Of these 35 weak verbs, the same 25 verbs were used in both structural and semantic exercises. (See Appendix D-3.) With the exception of a few cognates, no new nouns were added.

To validate the structural and semantic definitions used in this research, sample structural and semantic exercises, listed in random order and accompanied by a brief definition of these terms, were provided to seven German instructors. These instructors were asked to identify each drill as either structural or semantic. Without exception, every exercise was identified in the correct category. (See Appendix A-1).

The complete structural and semantic practice exercises were then submitted to five German professors, including one experienced textbook writer, for validation. (See Appendix A-2.) Following this validation, the computer exercises using programming language PL1 were then prepared and tested by the Instruction and Research Computer Center (IRCC) at The Ohio State

University. Although OSU uses an Amdahl 470 computer and the United States Air Force Academy a Burroughs 6700, a PL1 compiler and some minor modifications allowed the program to run at the Academy during the actual experiment.

The time length and the number of interactions of the practice variable had been carefully considered. Many computer programs dealing with grammatical practice indicate that a 20-25 minute practice period allows for approximately 25 interactions between student and computer. Based on the students' attention span and length of practice, as well as suggestions by other foreign language educators who have had experience in computer-assisted instruction, it was concluded that approximately 10 minutes for demonstration of and familiarization with the equipment and then 20 to 25 minutes of actual practice would suffice. The pilot study and the experiment confirmed this assumption.

Each student was asked to proceed through the required exercises only once, without going back to previously covered material. The student was allowed two tries in solving each problem. After the first

try, feedback was given by the computer praising the student for a correct answer or outlining the error and citing the appropriate grammar rule for an incorrect response. If the second try still resulted in an incorrect answer, the student was advised of the mistake and the computer then provided the correct answer. (See Appendix B-4.) As anticipated, a small difference in completion time between structural and semantic exercises existed since some students were better typists than others and some answered more questions correctly on the first try and thus needed less computer feedback. The semantic exercises, furthermore, required a deeper level of processing by the student and thus may have required a little more time than the structural exercises.

The Dependent Variable

Immediately after the practice session, a posttest was administered to the two experimental groups. (See Appendix C.) The same test was given to the Control Group in the classroom while the experimental groups were practicing. This criterion measurement consisted of two subtests, one for each level of practice, structural and semantic. Again, in order to avoid possible bias between structural and semantic type items, the test instrument consisted of 20 multiplechoice questions, with four possible options (one keyed answer and three distractors) and 20 completion items. Twenty of the total of 40 test items were structural and 20 semantic. While the former could be completed based on structural knowledge alone, the latter required understanding of meaning first and knowledge of structure second. (See Operational Definitions.) As in the case of practice exercises, the content of the test items was restricted to the active vocabulary acquired up to the time of the experiment. The 10 structural and 10 semantic multiple-choice items in the criterion measurement were presented in random order. The 10 multiple-choice items in each group, structural and semantic required the student to provide the correct past participle in six cases and the correct form of the auxiliary verb and the past participle in four cases. The structural completion part of the instrument consisted of two groups of five items each, and the semantic completion part consisted of two fivesentence passages. The task in the first five structural and semantic completion items was to provide the correct past participle, and in the second five structural and semantic completion items the correct form of both the auxiliary and the past participle. The complete criterion measurement is contained in Appendix C.

Analysis of Data

In order to obtain a more sensitive analysis of the test instrument, the 40-item test was analyzed as two subtests, structural and semantic. (See discussion of Dependent Variable in this Chapter.) The data obtained from the two subtests were subjected to a two-factor multivariate analysis of variance (MANOVA). According to Kerlinger (1973), MANOVA, whose main characteristics is the simultaneous analysis of multiple independent variables and multiple dependent variables on n individuals, is an extension of the univariate analysis of variance. Univariate analyses of variance were used as the principal follow-up technique of MANOVA.

All data analyses and computations were made on an Amdahl 470 computer by the Instruction and Research

Computer Center (IRCC) at The Ohio State University.

The Statistical Analysis System (SAS) program was used.

The following hypotheses of no difference between groups were tested:

- H₀ 1: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a structural multiple-choice/completion subtest.
- H_O 2: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a semantic multiplechoice/completion subtest.
- H_0 3: There are no interactive effects between aptitude and treatment.

Pilot Study

Since the practice variable was scheduled at a specific time in the regular curriculum at the Air Force Academy, a pilot study duplicating the planned experiment was not possible. The Ohio State University, therefore, was chosen for the pilot study. The pilot study served primarily to determine time requirements for the introduction and practice of the grammar concept, to allow for refinement of the practice and test instruments, and to identify possible problem areas associated with the computer and/or the instruments.

The pilot study, which consisted of three facets, was conducted during the Fall Quarter 1978. Three different OSU German 101 classes were used. Although <u>Deutsch heute</u>: <u>Grundstufe</u> was the basic text used both at OSU and USAFA, it was recognized that OSU students had covered only material through Chapter 5, whereas the subjects at the Air Force Academy would have completed seven chapters at the time of the experiment. Thus, a discrepancy existed between these two populations. In addition, most of the students at OSU also had had previous language

training, from one to five years in German or in another foreign language, whereas the students at USAFA had had no previous language training. At OSU, furthermore, course content, manner of presentation, type of practice, homework assignments, etc., varied considerably among instructors. At the Air Force Academy, on the other hand, the program was more uniform.

The German 101 class in the first facet of the pilot study consisted of 14 students. This researcher introduced the grammar concept to the class because no real advantage could be identified in having another instructor accomplish this task for the pilot study. The introduction included the statement of the grammar rule, examples of the formation of the present perfect tense of weak verbs, and practice of this concept with personal questions/answers. The introduction phase required seven minutes. Subjects were then randomly assigned to Group A, Structural $(\underline{n} = 5)$, Group B, Semantic $(\underline{n} = 5)$, and Group C, Control $(\underline{n} = 4)$. Experimental groups A and B completed the structural and semantic practice exercises, respectively, in handout format due to nonavailability of the final computer

products at that time. The posttest was then administered to all three groups. (See Appendix A-3.) Based on item analysis of the criterion measurement, several changes were made. In the semantic section, for example, which consisted of a passage in English and five out-of-sequence dehydrated sentences in the German present tense, students were asked to (1) sequence these five sentences according to the passage and (2) type the sentences in the present perfect tense. This section of the test was found to be ambiguous because in some instances it was difficult to determine if the student really understood the passage or simply guessed at sequencing the answers. As a result of this analysis, this section was eliminated and replaced by a five-item completion passage. A review of the students' practice exercises revealed no problem areas.

The second facet of the pilot study involved a German 101 class with 10 students. In general, the same procedures as in the first study were followed. Based on the small \underline{n} in that class, the 10 subjects were randomly assigned to Experimental Group A (\underline{n} = 5) and Experimental Group B (\underline{n} = 5) only. No control

group was used. The revised test instrument, consisting of 20 multiple-choice and 20 completion items (10 each, structural and semantic) was then administered. Review and item analysis of the revised instrument resulted in two minor changes. Again, no problems were encountered with the practice exercises.

The primary purpose of the third facet of the pilot study was to identify possible student problems with the software and to determine the time needed to complete the structural and semantic exercises. Four students practiced on the computer terminals with the structural exercises and three with the semantic ones. While performing their task, these seven students were closely monitored and observed by two computer programmers, one of whom prepared the software, and this researcher. No problems were encountered with the structural exercises. In the semantic exercises, however, some minor changes were made, including rewording of the instructions in one section. The average completion time was 25 minutes. The semantic exercises took from three to five minutes longer than the structural exercises. The slowest student, who typed with one finger only, required 31 minutes to complete the

semantic exercises. The length of the practice exercises was within the time range anticipated. Upon completion of the exercise, the students were administered the same posttest as the one in Facet II of the pilot study.

Some changes to the criterion measurement were previously discussed under the first facet of the pilot study. The revised instrument was given to all 17 students participating in the second and third facets of the study. The overall reliability of the 40-item test instrument as computed by the Kuder-Richardson 20 (KR 20) Formula was $.92 \ (\underline{n} = 17)$. KR 20 is an index of the internal consistency of a criterion measurement and is a function of the number of items on the test, the variability of the scores, and the proportion of students passing and failing each item. KR 20 for the structural subtest was computed as .93 and for the semantic subtest as .84.

CHAPTER IV RESULTS OF THE STUDY

Introduction

This study investigated the effectiveness of two types of computer practice (structural and semantic) across two levels of verbal aptitude in beginning college German students. A 3 X 2 factorial design was chosen. The three levels of the task variable were structural practice, semantic practice, and no practice. (See Operational Definitions in Chapter I.) The two levels of the aptitude variable were high and low aptitude.

The criterion measure consisted of a posttest composed of two subtests: (1) a structural measure and (2) a semantic measure. With the two subtests being considered as two dependent variables, the data were submitted to a multivariate analysis of variance (MANOVA) using the Statistical Analysis System (SAS).

Results

Table 2 presents the main-effect means and standard deviations (SD) of the two dependent variables, structural and semantic, for each of the independent variables. An inspection of these means shows that the Semantic Experimental Group consistently outperformed the Structural Group and the Control Group on both measures. The table further shows that the High-Aptitude Group outperformed the Low-Aptitude Group on both the structural and semantic subtests.

From Table 3, a summary of the multivariate analysis of variance, it may be seen that both the practice and aptitude variables were statistically significant (p<.01). The multivariate $\underline{F}(4,128)$ was 12.98 for the practice variable and $\underline{F}(2,65)$ = 5.85 for the aptitude variable.

The data from each dependent variable were submitted to a univariate analysis of variance. A summary of the univariate <u>F</u>-ratios is contained in Table 4. According to this table, the practice variable yielded a difference on both subtests beyond the .01 level of significance; $\underline{F}(2,66) = 19.25$ for the structural measure and $\underline{F}(2,66) = 21.70$ for the semantic measure.

Table 2. Main-Effect Means		and SD's	and SD's on Dependent Variables	Varia	oles	
Practice Variable Effects		De	Dependent Variables	ables		
		Structural	.a.1		Semantic	
	디디	ı×	SD	되	ı×	SD
stmictinal Practice	77	16.58	2.14	77	9.92	3.03
Semantic Practice	77	17.58	2.10	77	12.17	3.71
No Practice	77	11.83	5.12	77	6.38	3.12
Aptitude Variable Effects		De	Dependent Variables	lables		
		Structural	ral		Semantic	
	되	ı×	SD	ជា	ı×	SD
High Aptitude	36	16.00	3.76	36	10.72	4.27
Low Aptitude	36	14.67	4.59	36	8.25	3.43

Table 3. Summary of Multivariate Analysis of Variance (Hotelling-Lawley Trace)

			{
Source	df	ᄄᆌ	ᆈ
Practice Variable	4,128	12.98	7 .01
Aptitude Variable	2,65	5.85	<. 01
Practice X Aptitude	4,128	1.16	n.s.

Table 4.	Summary	Summary of Univariate F-Ratio	F-Ratio	
	Structu	Structural Subtest		
Source	df	MS	[파]	ਕ
Practice Variable	2	226.500	19.25	A .01
Aptitude Variable	7	32.000	2.72	n.s.
Practice X Aptitude	2	1.667	0.10	n.s.
Error	99	11.768		
	Semant	Semantic Subtest		
Source	df	MS	뙤	đ
Practice Variable	7	204.597	21.70	A .01
Aptitude Variable	₽	110.014	11.67	♦. 01
Practice X Aptitude	2	10.181	1.08	n.s.
Error	99	0.430		

The aptitude variable, however, was only significant on the semantic measure (p < .01). Neither of the interactions was significant.

A post hoc analysis was performed on the practice variable using Tukey's Honest-Significant-Difference Procedure. Table 5 displays the post hoc comparison results. A significant difference was found between the structural and semantic groups (practice groups) and the Control Group (no practice) on both structural and semantic measures (p <.01). This significant difference between both practice groups and the nopractice group indicates the importance of practice. The main interest of this research was concerned. however, with examining learning outcome differences between structural and semantic practice groups and the Control Group. In addition to the expected differences between practice and no-practice groups, a significant difference was detected between the Structural Group on the semantic measure (p < .05). There was no significant difference between the Structural Group and the Semantic Group on the structural measure, though the Semantic Group did achieve a higher score.

Significant Differences Among Practice Variable Means on Structural and Semantic Measurements (Tukey's HSD Post Hoc Comparison Procedure) Table 5.

*

			Measurement	ment			
	S,	Structural	П	01	Semantic		
Practice Variable	D D	A	B	O	A	В	
C (Control Group)	† 	* *	*	1 1	* *	*	
A (Structural Group)	 	! !	n.s.		1	*	
B (Semantic Group)) 	! ! !	!	 - 	1	

* P < 05 * P < 01 The specific findings for each null hypothesis tested are presented below:

Hypothesis I: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a structural multiple-choice/ completion subtest. The experimental data do not permit rejection of this hypothesis. The difference in mean scores between the Structural Group and the semantic Group on the structural subtest failed to reveal a significant difference. It should be noted, however, that the Semantic Group outperformed the Structural Group (\bar{x} = 17.58 versus 16.58) on this measure. Because the Structural Group practiced exclusively with structural concepts, it would seem reasonable that this group would outperform the Semantic Group on the structural measure. Based on the above data, however, this assumption was not confirmed.

The state of the s

Hypothesis II: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to

identify and manipulate present perfect tense structures as measured by a semantic multiple-choice/completion subtest. On the basis of the experimental data, this null hypothesis is rejected. The mean score for the Semantic Group on this measure was 12.17 versus 9.92 for the Structural Group. This difference proved to be significant beyond the .05 level using Tukey's Honest-Significant-Difference post hoc comparison.

Hypothesis III: There are no interactive effects between aptitude and treatment. This null hypothesis remains tenable. Neither the multivariate analysis of variance (see Table 3) nor the univariate analysis of variance (see Table 4) revealed significant treatment-by-aptitude interactive effects.

Although no interactive effects were evident in this study, some general comments concerning this variable seem appropriate. The aptitude variable was significant beyond the .01 level under the multivariate analysis of variance—F(2,65) = 5.85. (See Table 3.) While the univariate F(1,66) = 11.67 for the semantic subtest was also significant (p < .01), the F(1,66) = 2.72 for the structural subtest was not significant.

(See Table 4.) The difference in the significance of aptitude effects on the two subtests may be explained in terms of the inherent difficulty of these two tests. While the High-Aptitude Group achieved a mean score of 16.00 on the structural measure, the Low-Aptitude Group mean was 14.67. The mean scores for the semantic subtest for the two aptitude groups, however, were 10.72 and 8.25 for high- and low-aptitude groups, respectively. (See Table 2.)

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

<u>Overview</u>

The primary purpose of this study was to provide more insight into the effects of meaningful practice, a notion underlying virtually all current principles of foreign language learning. This study investigated the effectiveness of two types of computer practice, structural and semantic, and examined the relationship between the types of practice and verbal aptitude levels. The computer was chosen as the practice medium for this experiment because of its potential and possibilities as an adjunct to classroom instruction, especially in the area of drill and practice.

The experiment was conducted at the United States Air Force Academy in Colorado. Subjects (\underline{n} = 72) were beginning college German students who had no previous German language training in high school nor any exposure to a second language. The 72 subjects were blocked at the median by high and low aptitude based

on the verbal score on either the SAT or ACT. Subjects in each aptitude group ($\underline{n} = 36$) were then randomly assigned to Experimental Group A (structural computer practice), Experimental Group B (semantic computer practice), and Control Group C (no practice). After inclass introduction of the present perfect tense of weak verbs (the grammar concept in the regular curriculum at the time of the experiment) to all cadets by the same instructor, groups A and B practiced the grammatical concept on the computer with structural and semantic exercises, respectively. A structural exercise was defined as an exercise that could be accomplished by a student based on knowledge of structure alone. Thus, while structural knowledge was essential in such drills, meaning was optional. A semantic exercise, on the other hand, was defined as an exercise that could not be accomplished by a student without understanding the meaning of the items. Meaning was first and foremost, whereas structure was a secondary consideration.

The practice variable consisted of a 20-25 minute computer exercise. The structural and the semantic exercises consisted of five practice categories each, arranged from easy to more difficult. Each

category included five tasks dealing with the present perfect tense of weak verbs. In order to avoid bias between the two instruments, the same 25 verbs were used in both exercises. While the structural drills simply required a change of structure (change of an infinitive to the past participle, change of a sentence from the present to the present perfect tense, etc.), the semantic exercises required the student to choose from a list of verbs or phrases in order to make meaningful sentences in the present perfect tense. The Control Group had no practice.

After the practice session, all three groups were administered a posttest that consisted of two subtests:

(1) a structural measure and (2) a semantic measure, each of which was composed of 10 multiple-choice and 10 completion items. Kuder-Richardson 20 reliability coefficients of .88 for the structural and .78 for the semantic measures were computed. The entire 40-item criterion measurement yielded a KR 20 reliability coefficient of .90.

The analysis chosen was a 3 X 2 factorial design. All data obtained from the criterion measurement were submitted to a multivariate analysis of variance to

determine the main effects of each independent variable (practice and aptitude) on the dependent variables (structural and semantic subtests) as well as the effects of interaction between the independent variables. Univariate analysis of variance was used as the principal follow-up technique.

Summary of Findings

A review of the findings revealed differences beyond the .01 level of significance for both practice and aptitude variables under the multivariate analysis of variance, but no interactive effects between practice and aptitude treatments were found. Under the univariate analysis of variance, the aptitude variable was significant in the semantic subtest (p < .01) but not significant in the structural subtest. There were no interactive effects between practice and aptitude in either of the two measures.

The practice variable was significant in the univariate analysis of variance beyond the .01 level. As expected, post hoc analysis using Tukey's HSD procedure revealed a significant difference (p < .01) on both the structural and semantic subtests between the

experimental groups and the Control Group. This significance seems to point out the importance of practice in the learning process. The main interest of this study, however, dealt with the effects of practice between structural and semantic groups. The difference in mean scores between these groups on the structural measure were not large enough to be significant, though it should be noted that the Semantic Group did outperform the Structural Group on that measure. On the semantic measure, however, a significant difference beyond the .05 level was discovered between structural and semantic groups. The Semantic Group performed significantly better than the Structural Group.

The following research questions were posed in Chapter I:

Question I: Is the ability to identify and

manipulate a particular grammatical

structure influenced by the type of

practice; i.e., structural versus

semantic?

The results of this study show that the Semantic Group outperformed the Structural Group on the semantic

measure (p<.05). While the difference in mean scores between semantic and structural groups on the structural measure was not significant, the Semantic Group did achieve the higher mean (17.58 and 16.58, respectively). This lack of difference in mean scores on the structural subtest may be due to the manner in which some students performed their tasks. Knowledge of the correct prefix and suffix was the main requirement for completing a structural present perfect tense problem successfully; it was not necessary for the student to understand the meaning of each item/problem. Thus, the high mean on this measure seems to suggest that many students may have focused solely on application of the correct structure in completing the structural task. It is not known, however, how many subjects did and how many did not attend to meaning while practicing.

In contrast, the difference in mean scores between structural and semantic groups on the semantic measure was significant at the .05 level. The mean scores on this measure were lower than those on the structural measure; i.e., 9.92 versus 16.58 for the Structural Group and 12.17 versus 17.58 for the Semantic Group. The lower mean attained by both groups on

the semantic measure appears to be a function of the inherent difficulty of the semantic items/problems themselves. The semantic tasks were more difficult for the students. While knowledge of the grammatical structure was the only requirement on the structural subtest, the key to successful accomplishment of a semantic task required a deeper level of processing.

It is often said that one learns what one practices. While the results on the semantic measure are consistent with this logical assumption, this expectation was not met by the Structural Group on the structural measure. Because the Structural Group practiced exclusively with structural exercises, it could have been reasonably expected that this group would outperform the Semantic Group on the structural measurement. The experimental data shows, however, that the Semantic Group outperformed the Structural Group on the structural measure, though the mean score differences were not significant.

The data of this study seem to support the contention that retention is a function of the meaning-fulness of one's experiences (learning). Because use of language for a purpose is one of the principal goals

in foreign language education, meaning seems to be an essential ingredient in this process. These findings are consistent with previous research.

Another relevant implication of this study is that meaningful learning or meaningful practice is not dependent upon in eraction between people. As shown by the performance of the Semantic Group in this experiment, a deeper level of processing (meaningful content processing) resulting in better understanding can also take place by interacting with a medium, such as the computer. Thus, these findings suggest that interpersonal interactions do not necessarily seem to be a sine qua non for meaningful language practice.

Question II: Does the verbal aptitude variable interact with the task variable in terms of student learning?

The experimental data clearly showed that there were no interactive effects between aptitude and treatment. The high-aptitude students consistently outperformed the low-aptitude students in both structural and semantic measures. These findings suggest that in this study, perhaps, the limited time and limited

concepts dealt with precluded any potential interactive effects from surfacing. Replication of the study using a larger experimental condition may provide a more complete picture of the aptitude variable.

Relationship to Other Studies

While this study is not a replication of previous research, it is related to and consistent with previous research dealing with meaningful and communicative practice. Chastain and Woerdehoff (1968) found that drills stressing understanding were superior to pattern drills. Oller and Obrecht (1968) demonstrated that a pattern drill is more effective if it is related to communicative activity. Jarvis (1970) showed that contextualized (meaningful) practice achieved better results than generic practice. Finally, Joiner's (1974) results of an experiment favored oral communicative practice over non-communicative practice. All of these studies showed the importance of a deeper level of processing with meaningful and/or communicative language practice in situations of personal interrelations; i.e., interactions between teacher and student. This study shows, moreover, that the efficacy of meaningful language use

is not dependent upon interaction between people. It is instructive to point ou+ that it seems to be the meaningfulness of the language that makes a difference and not the way meaningful language is used among people.

The performance by the Structural Group in this experiment also seems to support Hosenfeld's (1976) research in which she found that students processed only the information that was necessary to complete the required task; i.e., morphological-syntactic information alone rather than meaning. Hosenfeld's study and the present research seem to suggest that unless an exercise requires attention to meaning for its successful accomplishment, a student may do only what is absolutely necessary to meet the task objective, such as providing the required structure without processing the content of the item/problem. Such a student does not then make optimal use of practice time or effort.

Recommendations for Future Research

This study measured the effects of structural versus semantic grammar practice using the computer as

the practice medium. Since learning and practicing grammatical concepts is necessary in the second-language process, the computer seems to have great potential as a practice medium for such tasks, especially in developing the students' reading and writing skills. therefore recommended that further research with meaningful language practice using the computer be pursued. It is suggested, moreover, that additional small-scale experiments be conducted with language students at various levels of instruction. For these experiments, the same grammatical concept employed in this study may be used, or any other grammatical concept (such as prepositions, pronouns, modal auxiliaries, future tense, etc.) may be chosen as the practice variable. Similar studies may also be pursued with advanced language students using more complex grammatical concepts and computer exercises. Such experiments may yield further insight into the theories of meaningful language learning/practice.

The study of attitudes and motivation should also be made an integral part of all further experiments involving computer practice. While the present research did not deal with these variables, the many favorable

comments and the strong support for computer practice expressed by the cadets during and after the practice session seem to suggest that attitude and motivation may be extremely important when using the computer as a practice medium. The study of these two variables in conjunction with future computer experiments may provide valuable information about the students' desires and preferences.

In addition to attitude and motivation, future research dealing with meaningful computer practice may also investigate the significance of computer feedback. Because the feedback variable has been shown to be an important element in the learning process, future studies focusing on this aspect of computer practice may provide relevant information on the efficacy of the computer as a practice medium in the foreign language learning process.

APPENDIX A

Validation of Instruments

- 1. Validation of Structural and Semantic Categories
- 2. Validation of Structural and Semantic Exercises
- 3. Pilot Study Criterion Measurement

1. Validation of Structural and Semantic Categories

STRUCTURAL AND SEMANTIC DRILLS

Please read the following definitions carefully:

Structural Drill: A structural drill can be accomplished by a student based on his/her knowledge of structure alone. Structural knowledge is essential and meaning is optional. Whether or not a student attends to meaning in such a drill is not known.

Semantic Drill: A semantic drill cannot be accomplished by a student unless he/she understands the meaning of the items. Meaning is first and foremost; structure is a secondary consideration.

In the following sample exercises, identify each exercise as either structural or semantic by placing an "X" in the appropriate column.

STRUC SEMAN	INSTRUCTIONS (I) AND SAMPLE DRILL (D)
	I: Type in the correct form of the auxiliary verb "haben."
	D: Ich der Dame mein Auto gezeigt.
	I: Make two complete sentences in the present perfect tense by including one element from each category.
	D: Der Gast (warten) sehr gut. Das Essen (schmecken) im Restaurant.
	I: Put the following sentences into the present perfect tense.
	D: Er kauft der Mutter Blumen. Er der Mutter Blumen
	I: Supply the past participle of the verb in parenthesis:
	D: Ich habe es ihm nicht (glauben)
	I: Complete the following statement in the present perfect tense by choosing two appropriate verbs from the list which follows the statement. Also, insert the correct form of the auxiliary verb.
	D: Meine Eltern mehr als

STRUC SEMAN	INSTRUCTIONS (I) AND SAMPLE DRILL (D)
	I: Complete each of the following sentences with an activity taken from the following list and provide the past participle of "spielen."
	D: Jack Nicklaus hat viel John Denver hat viel Chris Evret hat viel
	- Tennis - Golf - Gitarre
	I: Select the appropriate verb for each sentence from the list given below.
	D: Ich habe die Geschichte (regnen) Er hat die Zigarette (glauben) Es hat die ganze Nacht (rauchen)
	I: Provide the correct form of the auxiliary verb "haben" and the past participle of the verb in parenthesis.
	D: Wir den Mann (suchen)
	I: Read the following passage.
	"As Mrs. Braun was leaving the house to go shopping, the phone rang. It was a wrong number. She left the house and drove to the city. After she parked her car, she bought some flowers "
	Arrange the following sets of words into complete, present perfect tense sentences. Your first answer must be the earliest event mentioned in the passage, followed by the second event, etc.
	D: /das Auto/parken/sie/. /hören/Frau Braun/das Telefon/. /sie/Blumen/kaufen/.
	I: Answer the following question affirmatively.
	D: Haben Sie früher Fussball gespielt?

Validation of Structural and Semantic Exercises

October 18, 1978

Dear

As you know, the purpose of this research is to compare the effectiveness of two types of computer practice, structural and semantic. A structural drill is defined as a drill that can be accomplished by a student based solely on know-ledge of the structure. Meaning is optional. A seman-tic drill, on the other hand, is defined as a drill that cannot be accomplished by a student without understanding the meaning of the items. Meaning is paramount and application of structure is a secondary consideration.

The grammatical concept that will be used in this experiment is the present perfect tense of weak verbs. Following the introduction of this concept in the classroom, experimental groups A and B will practice the present perfect tense on the computer, using the enclosed structural and semantic exercises respectively. After the practice session, a posttest will be administered to both experimental groups and to a control group whose members did not have any practice.

At the time of the experiment, the students will have covered seven chapters in <u>Deutsch heute: Grundstufe</u> (Moeller and Liedloff, 1974). The active vocabulary in these seven chapters consists of 35 weak verbs and 144 nouns (see enclosed list). From the total of 35 weak verbs, the same 25 verbs are contained in both structural and semantic exercises. All vocabulary items in these exercises are limited to the vocabulary studied by the students in the first seven chapters of their text.

Please review these exercises for accuracy. Your comments and suggestions would be appreciated. Thank you for your cooperation and assistance.

Sincerely,

REINER H. SCHAEFFER

Structural Exercises
Semantic Exercises
List of Weak Verbs and Nouns

Encl. #1

STRUCTURAL EXERCISES

	Type the appropriate form of the auxiliary verb "haben" the space provided:
	Ich der Dame mein Auto gezeigt. Mein Vater und mein Onkel ein Haus gebaut. Er heute nicht viel gelacht. Sie (she) das Mittagessen gekocht? Die kleinen Kinder in der Schule geweint.
	Insert the past participle of the verb in parenthesis in space provided:
	Ich habe es ihm nicht . (glauben) In Deutschland hat das Bier immer gut . (schmecken) Meine Bekannten haben lange in Bonn . (wohnen) Haben Sie beim Krankenhaus ? (parken) Frau Weiss hat eine Reise nach Luxemburg . (machen)
	Provide the correct form of the auxiliary verb "haben" the past participle of the verb in parenthesis:
	Wir den Mann . (suchen) er das auch schon ? (hören) Auf wen Sie ? (warten) Während des Sommers der Professor in Osterreich (arbeiten)
4.	Put the following sentences into the present perfect tense:
	Er kauft der Mutter Blumen. Er der Mutter Blumen
	Die Vorlesung dauert den ganzen Nachmittag. Die Vorlesungden ganzen Nachmittag
	Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel
	Der Tourist fragt nach einer Landkarte. Der Tourist nach einer Landkarte
	Wohin legen Sie die Zeitung? Wohin Sie die Zeitung?
5.	Answer each of the following questions affirmatively:
	Haben Sie früher Fussball gespielt? Hat es gestern geregnet? Hat Kaffee letztes Jahr viel gekostet? Haben Sie in der Schule viel gelernt? Hat Ute die Milch in den Kühlschrank gestellt?

Encl. #2

SEMANTIC EXERCISES

pas	Complete each of the civity taken from the cit participle of the	verb "spielen."	•
<u>Ac</u> t	<u>ivities</u> : Tennis		
	Jack Nicklaus hat vie John Denver hat vie Chris Evert hat vie	vielel	
per of	rfect tense by choosi three. Also insert	ing <u>two</u> appropr the correct fo	atements in the presen iate verbs from the li rm of the auxiliary ve
	Meine Schwester	immer lieber onnen lernen	als
	Meine Eltern	mehr al tellen weinen	s
	Ich ihn etwas Verbs: legen s	und er agen fragen	hat "nein"
11:	Select the appropr st given below. Typ the space provided.	e the correspon	ach sentence from the ding past participle
Ve:	rbs: glauben mach	en rauchen	regnen
	Ich habe die Gesch Meine Mutter hat e Es hat die ganze N Die lange Reise ha	ine Zigarette	·
se: el	In the following p ntences each in the ement from each cate e specified subject.	present perfect gory (verb-phra	tense by adding one
Ξx	ample:		
	<u>Subject</u> Hans Die Party	Verb (enden) (danken)	<u>Phrase</u> der Familie Haas. um ein Uhr morgens.
An	<u>swer</u> : Hans hat der Die Party hat	Familie Haas ge um ein Uhr mor	edankt. gens geendet.
No	w the problems:		
Α.	Der Gast Das Mittagessen	(warten) (schmecken)	sehr gut. im Restaurant.

- B. Das Auto (bauen) ein Einfamilienhaus. Mein Vater (kosten) viel Geld.
- C. Peter (dauern) Anna die Kirche.
 Das Interview (zeigen) nur 5 Minuten.
- 5. Read the following passage:

As Mrs. Braun was leaving the house to go shopping, the phone rang. She picked it up. It was a wrong number. She left the house and drove into the city. After she parked her car, she went to look for some flowers. She finally found some beautiful carnations and bought them. Mrs. Braun then returned home and spent the rest of the day working in her kitchen.

Make a complete sentence in the present perfect tense for each of the following sets of words. Then sequence the sentences according to the above passage.

/arbeiten/sie/zu Hause/.
/das Auto/Frau Braun/parken/.
/kaufen/sie/Blumen/.
/das Telefon/Frau Braun/hören/.
/die Dame/suchen/Blumen/.

Encl. #3

LIST OF WEAK VERBS AND NOUNS

Weak Verbs

antworten	arbeiten*	bauen*
danken	dauern*	enden
fragen*	führen	glauben*
haben	hören*	kaufen*
kochen*	kosten*	lachen*
leben	legen*	lernen*
Lieben	machen*	meinen
öffnen	parken*	passen
rauchen*	regnen*	sagen*
schmecken*	spielen*	stellen*
suchen*	warten*	weinen*
wohnen*	zeigen#	

* used in both structural and semantic exercises.

Nouns

Chapter 1 Abend Amerika Frau Fräulein Frühling Gespräch Herbst Herr Kind Mann Morgen Sonne Stadt Tag Tourist Wetter Wind Winter Wort Chapter 2 Apctheke Bäckerei Brot Brot Butter Drogerie Familie Fisch Geschäft	Haus Jahr Kaffee Kuchen Lebensmittel Milch Pfund Prüfung Sache Salz Seife Supermarkt Tablette Weg Chapter Amerikaner Amerikanerin DDR Deutsche Dom Eltern Europa Ferien Frankreich Kirche Land Leute Luxemburg Mensch Nachbar	Gabel Gast Hand Messer Nacht Party Restaurant Seite Vorlesung Wanderung Wasser Woche	Geld Geschichte Glas Minute Onkel Vater Viertel Universität Wohnung Chapter 6 Besuch Fernseher Kleidung Koffer Krankenhaus Krieg Kühlschrank Land Leben Mal Möbel Motorrad Nachmittag	Preis Rad Radio Schule Strasse Telefon Vergnügen Verkehr Waschmaschine Weile Welt Zeitung Chapter 7 Bekannte Dame Dank Farbe Freund Gedicht Gemüse Haar Körper Körper Kranke Lied Moment Mutter Natur Obst Professor Reklame Wald
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3. Pilot Study Criterion Measurement

Pilot S	tudy PRESENT PERFECT TENSE OF WEAK VERBS - TEST INSTRUMENT
(Q 1-20) <u>Circle the Correct Answer</u>
а. Ъ.	junge Mann hat die hübsche Dame sehr
a. b. c. d.	gepasst
a. b. c.	hatte lachen hat gelacht hat lachen
a. b. c. d.	Sie gestern neue Möbel ? Haben kaufen Habt gekauft Haben gekauft Hatte gekauft
а. b.	Nachbar hat sein Motorrad den ganzen Tag langsucht suchte gesucht suchen
	gelebt
7. Sei a. b. c. d.	t wann sie bei der Firma Bauer ? hat arbeiten haben gearbeitet habe gearbeitet haben arbeiten
8. Das	Interview im grossen Autogeschäft hat sehr lange
a. b. c. d.	gewartet warten gezeigt gedauert

9.	Der Herr aus Italien bei uns in der Schule . a. hat lernen b. habe gelernt c. hat gelernt d. haben gelernt
10.	Mein Vater und meine Mutter seit zwei Jahren in einem Einfamilienhaus a. haben gewohnt b. haben leben c. hat gelebt d. hat gelegt
11.	Ich habe die ganze Geschichte nicht a. geglaubt b. glaubte c. glaubt d. glaube
12.	Mein Onkel hat dem Touristen den Dom a. zeigt b. zeigte c. zeigen d. gezeigt
13.	Hoffentlich es Ihnen hier bei uns gut a. haben gekocht b. hat gekocht c. hat geschmeckt d. hat gekauft
14.	Am Nachmittag habe ich den Besuch in die Stadt a. geführt b. führt c. führen d. führe
15.	Die Lebensmittel haben in der Schweiz mehr als in Amerika a. gewohnt b. gekostet c. geschmeckt d. schmeckt
16.	Bei schlechtem Wetter habe ich bei der Apotheke a. gesucht b. geregnet c. geparkt d. regnen
17.	Die Schüler haben eine Vorlesung an der Universität a. naben b. hat g. gehabt

Ç

18. Ich habeund meine Schwester hat a. gedauert gelacht b. geweint lacht c. gedauert geweint d. gelacht geweint 19. Nach der Schule ich 20 Minuten auf ihn a. habe geantwortet b. habe geantwortet d. hat geantwortet d. hat geweint 20. warm hat die lange Reise nach Österreich endlich a. geendet c. geregnet c. geparkt d. regnen (Q 21-25) Complete the Following Sentences in the Present Perfect Tense: 21. Wir haben es nicht böse (meinen) 22. Warum haben die Gäste die Tür nicht ? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (Q 26-30) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb
a. gedauert gelacht b. geweint lacht c. gedauert geweint d. gelacht geweint 19. Nach der Schule ich 20 Minuten auf ihn a. habe geantwortet b. habe gewartet c. hat geantwortet d. hat gewartet 20. warn hat die lange Reise nach Österreich endlich 2
c. gedauert geweint 19. Nach der Schule
d. gelacht geweint 19. Nach der Schule
19. Nach der Schule ich 20 Minuten auf ihn a. habe geantwortet b. habe gewartet c. hat gewartet d. hat gewartet 20. warm hat die lange Reise nach Österreich endlich a. geendet b. geregnet c. geparkt d. regnen (2 21-25) Complete the Following Sentences in the Present Perfect Tense: 21. Wir haben es nicht böse (meinen) 22. Warum haben die Gäste die Tür nicht? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (2 26-30) Complete the Following Passage in the Present
a. habe geantwortet b. habe gewartet c. hat geantwortet d. hat gewartet 20. warm hat die lange Reise nach Österreich endlich 21. a. geendet 22. geregnet 23. geparkt d. regnen 24. Wir haben es nicht böse (meinen) 25. Warum haben die Gäste die Tür nicht? (öffnen) 26. Das Mittagessen hat bei meiner Mutter lange (dauern) 27. Das Gemüse hat mehr als die Milch (kosten) 28. Im Restaurant habe ich viel (rauchen) 29. Complete the Following Passage in the Present
b. habe gewartet c. hat geantwortet d. hat gewartet 20. warm hat die lange Reise nach Österreich endlich a. geendet c. geregnet c. geparkt d. regnen (C 21-25) Complete the Following Sentences in the Present Perfect Tense: 21. Wir haben es nicht böse (meinen) 22. Warum haben die Gäste die Tür nicht? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (C 26-30) Complete the Following Passage in the Present
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21. Wir haben es nicht böse (meinen) 22. Warum haben die Gäste die Tür nicht? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (© 26-30) Complete the Following Passage in the Present
21. Wir haben es nicht böse (meinen) 22. Warum haben die Gäste die Tür nicht? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (© 26-30) Complete the Following Passage in the Present
22. Warum haben die Gäste die Tür nicht ? (öffnen) 23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch . (kosten) 25. Im Restaurant habe ich viel (rauchen) (© 26-30) Complete the Following Passage in the Present
23. Das Mittagessen hat bei meiner Mutter lange (dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (C 26-30) Complete the Following Passage in the Present
(dauern) 24. Das Gemüse hat mehr als die Milch (kosten) 25. Im Restaurant habe ich viel (rauchen) (Q 26-30) Complete the Following Passage in the Present
25. Im Restaurant habe ich viel (rauchen) (\$\cappa 26-30\$) Complete the Following Passage in the Present
25. Im Restaurant habe ich viel (rauchen) (C 26-30) Complete the Following Passage in the Present
(\$26-30) Complete the Following Passage in the Present
(Q 26-30) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb
Perfect Tense by Choosing the Appropriate Verb
from the List Provided:
• • • • • • • • • • • • • • • • • • • •
danken leben arbeiten bauen rauchen passen machen regnen wohnen
bauen rauchen passen machen regnen wohnen
machen registi wonner
26. Onkel Karl hat vor einem Jahr ein neues Haus
27. Heute morgen haben mein Vater und ich bei meinem Onkel
von 8 bis 12 Uhr im Garten 28. Leider hat es
ein bisschen 29. Während der Arbeit hat mein
Vater sehr viel 30. Am Nachmittag habe ich einen

(Q 31	-35) Put the Following Sentences into the Present Perfect Tense:
31.	Ihnen der Kuchen ? (schmecken)
32.	Ich seit vielen Jahren in der Schweiz
33.	Was Hans und Inge den Professor ?
34.	Herr und Frau Lehmann ein modernes Haus (bauen)
35.	Unsere Nachbarin die Tomaten in den Kühlschrank (stellen)
(9.30	6-40) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:
	haben glauben lieben meinen zeigen stellen führen kosten lernen
36.	Auf meiner Universität in Stuttgart ich
wirk:	lich sehr gutes Deutsch 37. Die
Unive	ersität eine neue Bibliothek mit vielen
inter	ressanten Büchern 38. Mein Freund
Rolf	und ich aber den Sportplatz besonders
	. 39. Wir dort viel Fussball
	. 40. Nach vielen Jahren Rolf
70s+	ern endlich geinen Eltern die Universität

APPENDIX B

Computer Exercises

- 1. Introduction to the Present Perfect Tense
- 2. Structural Exercises
- 3. Semantic Exercises
- 4. Structural and Semantic Feedback Examples

Introduction to the Present Perfect Tense

PRESENT PERFECT TENSE WITH WEAK VERBS

Before practicing the present perfect tense of weak verbs, let's get acquainted with the computer terminal and do the following two exercises:

1. Complete the following sentence with a state taken from the following list:

California Colorado Texas Ohio

The state which most closely approximates the area of Germany is _____.

Your choice is: Colorado

Correct answer.

2. Type the appropriate country in the space provided in the following sentence:

German is spoken in Germany, Switzerland, and ______

Your choice is: Austria

Very sood!

Let's now begin with the present perfect tense.

The present perfect tense is used considerably more in conversational German than it is used in English. Thus, it is often called the conversational past. It is also called a "compound tense" because it consists of two entities:

- 1) The present tense of the AUXILIARY VERB and
- 2) The PAST PARTICIPLE of the principal verb.

AUXILIARY VERB PAST PARTICIPLE

he has asked hat sefrast

In this lesson, we are only concerned with the present perfect tense of NEAK

The past participle of regular weak verbs is formed by adding the prefix "se" and the suffix 't' to the verb stem. The suffix 'et' is added if the stem ends in d, t, Cm or Cn, where C is any consonant other than 1 or r.

SUFFIX	INFINITIVE	STEM	PAST PARTICIPLE
-t	lernen	lern-	GElernT
	machen	mach-	GEmachT
-et	resnen	resn-	GEresnET
	arbeiten	arbeit-	GEstbeitET

WORD ORDER: The auxiliary is the second element in the sentence and the Past participle is always placed at the end of the clause.

Present Tense: Ich LERNE in der Schule. Perfect Tense: Ich HABE in der Schule GELERNT.

2. Structural Exercises

1. Type the appropriate form of the auxiliary verb "haben" in the space provided:
Ich der Dame mein Auto gezeigt.
Your chaice is: habe
Sehr sut!
Mein Vater und mein Onkel ein Haus sebaut.
Your choice is: haben
Prima!
Er heute nicht viel selacht.
Your choice is: hat
Aussezeichnet! .
sie (she) das Hittagessen gekocht?
Your choice is: Hat
Prima!
Die kleinen Kinder in der Schule seweint.
Your choice is: haben
Aussezeichnet!
2. Insert the past participle of the verb in parenthesis in the space provided.
2. Insert the past participle of the verb in parenthesis in the space provided. Ich habe es ihm nicht (slauben)
Ich habe es ihm nicht (slauben)
Ich habe es ihm nicht (slauben) Your choice is: seslaubt
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut!
Ich habe es ihm nicht (glauben) Your choice is: geglaubt Sehr gut! In Deutschland hat das Bier immer gut (schmecken)
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt
Ich habe es ihm nicht (glauben) Your choice is: geglaubt Sehr gut! In Deutschland hat das Bier immer gut (schmecken) Your choice is: geschmeckt Prime!
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prime! Heine Bekannten haben lanse in Bonn (wohnen)
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prime! Meine Bekannten haben lanse in Bonn (wohnen) Your choice is: sewohnt
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prime! Heine Bekannten haben lanse in Bonn (wohnen) Your choice is: sewohnt Aussezeichnet!
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prime! Heine Bekannten haben lanse in Bonn (wohnen) Your choice is: sewohnt Aussezeichnet! Heben Sie beim Krankenhaus (perken)
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prime! Meine Bekannten haben lanse in Bonn (wohnen) Your choice is: sewohnt Aussezeichnet! Haben Sie beim Krankenhaus (Parken) Your choice is: sewarkt
Ich habe es ihm nicht (slauben) Your choice is: seslaubt Sehr sut! In Deutschland hat das Bier immer sut (schmecken) Your choice is: seschmeckt Prima! Heine Bekannten haben lanse in Bonn (wohnen) Your choice is: sewohnt Aussezeichnet! Haben Sie beim Krankenhaus (parken) Your choice is: separkt Prima!

3. Provide the correct form of the auxiliary verb "haben" and the past participle of the word in parenthesis:
Wir den Mann (suchen)
haben sesucht
Sehr sut!
er das auch schon? (hoeren)
Hat sehoert
Prime!
Auf wen Sie? (warten)
: haben dewartet
Aussezeichnet!
Waehrend des Sommers der Professor in Desterreich (arbeiten)
: hat mearbeitet
Prima!
Was Sie dem Englaender? (sagen)
: haben desagt
Ausezeichnet!
4. Put the following sentences into the present perfect tense by supplying the words for which blanks have been substituted:
Er kauft der Mutter Blumen.
Er der Mutter Blumen
Er der Mutter Blumen
Er der Mutter Blumen hat sekauft Prime! Die Vorlesuns dauert den sanzen Nachmittas.
Er der Mutter Blumen hat sekauft Prime! Die Vorlesuns dauert den sanzen Nachmittes. Die Vorlesuns den sanzen Nachmittas :
Er der Mutter Blumen hat sekauft Prime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert
Er der Mutter Blumen hat sekauft Prime! Die Vorlesuns dauert den sanzen Nachmittes. Die Vorlesuns den sanzen Nachmittas :
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel.
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet!
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel
Er der Mutter Blumen hat sekauft Rrims! Die Vorlesuns dauert den sanzen Nachmittes. Die Vorlesuns den sanzen Nachmittes hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel haben seraucht Sehr sut!
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel haben seraucht Sehr sut! Der Tourist frast nach einer Landkarte. Der Tourist nach einer Landkarte
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel haben seraucht Sehr sut! Der Tourist frast nach einer Landkarte.
Er der Nutter Blumen hat sekauft Prima! Die Vorlesuns deuert den sanzen Nachmittes. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel haben seraucht Sehr sut! Der Tourist frast nach einer Landkarte. Der Tourist nach einer Landkarte 1.
Er der Mutter Blumen hat sekauft Rrima! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den Sanzen Nachmittas that sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel thaben seraucht Sehr sut! Der Tourist frast nach einer Landkarte. Der Tourist nach einer Landkarte that sefrast
Er der Mutter Blumen hat sekauft Rrime! Die Vorlesuns dauert den sanzen Nachmittas. Die Vorlesuns den sanzen Nachmittas hat sedauert Aussezeichnet! Die Studenten rauchen wirklich zuviel. Die Studenten wirklich zuviel haben seraucht Sehr sut! Der Tourist frast nach einer Landkarte. Der Tourist nach einer Landkarte hat sefrast Prime! Wohin lesen Sie die Zeituns?

5. Answer each of the following questions AFFIRMATIVELY. Remember each answer must start with the word 'Ja,'.

Haben Sie frueher Fussball gespielt? : Jar ich habe frueher Fussball gespielt.

Sehr sut!

Hat es destern derednet? : Ja, es hat destern derednet.

Sehr sut!

Hat Kaffee letztes Jahr viel sekostet? : Ja, Kaffee hat letztes Jahr viel sekostet.

Sehr sut!

Haben Sie in der Schule viel selernt? : Ja, ich habe in der Schule viel selernt.

Sehr sut!

Hat Ute die Milch in den Kuehlschrank sestellt? : Ja: Ute hat die Milch in den Kuehlschrank sestellt.

Sehr sut! READY

3. Semantic Exercises

 Complete each of the following sentences with an activity taken from the following list and with the past participle of the verb "spielen".
ACTIVITIES: Tennis Giterre Golf
Jack Nicklaus hat viel : Golf Mespielt
Prima!
John Denver hat viel i Gitarre gespielt
Aussezeichnet!
Chris Evert hat viel
Tennis sespielt
Sehr sut!
2. Complete each of the following statements in the PRESENT PERFECT TENSE by choosing TWO appropriate verbs from the list which follows the statement. ALSO insert the correct form of the auxiliary verb "haben".
Meine Schwester immer lieber als
VERBS: kachen wahnen lernen
Your choices are: hat sekocht selernt
Sehr sut!
Meine Eltern mehr als
THE VERBS ARE: lachen stellen weinen
Your choices are: haben selecht seweint
Sehr sut!
Ich ihn etwas, und er hat 'nein'
THE VERBS ARE: lesen saden fraden
Your choices are: habe sefrast sesast
Aussezeichnet!

3. Select the appropriate verb for each sentence from the list given below. slauben machen rauchen resnen TYPE THE CORRESPONDING PAST PARTICIPLE AS REQUESTED. Ich habe die Geschichte Your choice is: seslaubt Sehr sut! Meine Mutter hat eine Zisarette _____. Your choice is: seraucht Sehr sut! Es hat die sanze Nacht _____. Your choice is: seresnet Sehr sut! Die lange Reise hat mich muede _____ Your choice is: seascht Sehr sut! 4. In the following three problems, construct two meaningful sentences each in the present perfect tense by adding one element from EACH CATEGORY (verb-phrase) appropriate to the specified subject. EXAMPLE: VERB PHRASE SUBJECT der Familie Haas. Hans (enden) Die Party (danken) um ein Uhr morgens. ANSWER:

Hans hat der Familie Haas gedankt. Die Party hat um ein Uhr morgens geendet.

Now the problems:

A. Der Gast (warten) sehr sut.
Das Essen (schmecken) im Restaurant.

Sentence no. 1 :Der Gast hat im Restaurant sewartet.

Sentence no. 2 :Das Essen hat sehr sut seschmeckt.

Sentence no. 1 is correct. Sentence no. 2 is correct.

B. Das Auto (bauen) ein Haus. Mein Vater (kosten) viel Geld.

Sentence no. 1 : Das Auto hat viel Geld sekostet.

Sentence no. 2 : Mein Vater hat ein Haus gebaut.

Sentence no. 1 is correct. Sentence no. 2 is correct.

C. Peter (dauern) Anna die Kirche. __ Das Interview (zeisen) nur 5 Minuten.

Sentence.no. 1 :Peter hat Anna die Kirche sezeist.

Sentence no. 2 :Das Interview hat nur 5 Minuten sedauert.

Sentence no. 1 is correct. Sentence no. 2 is correct.

5. Read the following passage:

As Mrs. Braun was leaving the house to go shopping, the phone rang. She picked it up. It was a wrong number. She left the house and drove to the city. After she parked her car, she went to look for some flowers. She found some beautiful carnations in a little shop and bought them. She then returned home and spent the rest of the day working in her kitchen.

Your task is to ARRANGE each of the 5 sets of words into complete, PRESENT PERFECT TENSE sentences using the words given in each set. ALSO, sequence the sentences according to the events in the above passage. Your first answer must be the earliest event in the passage, followed by the second event, etc. Type all five sentences (one sentence per line) before waiting for computer RESPONSE.

- /arbeiten/sie/zu/Hause/.
- /Auto/Frau Braun/das/parken/.
- /kaufen/sie/Blumen/
 /das Telefon/Frau Braun/hoeren/
- 5. /die Dame/suchen/Blumen/

Your answer:

:Frau Braun hat das Telefon sehoert.

:Frau Braun hat das Auto separkt.

:Die Dame hat Blumen gesucht.

:Sie hat Blumen sekauft.

:Sie hat zu Hause dearbeitet.

Line no. 1 is correct

Line no. 2 is correct

Line no. 3 is correct

Line no. 4 is correct

Line no. 5 is correct

READY

4. Structural and Semantic Feedback Examples

1. Type the appropriate form of the auxiliary verb "haben" in the space provided:
Ich der Dame mein Auto sezeist.
Your choice is: hat
This is incorrect. Check subject_verb agreement of the auxiliary. Try asain.
Your choice is: habe
Das ist besser.
2. Insert the past participle of the verb in parenthesis in the space provided.
Ich habe es ihm nicht (slauben)
Your choice is: sestauben
Leider falsch. Remember the past participle of weak verbs is formed by adding the prefix "se" and the suffix "t" to the verb stem. Try again.
Your choice is: seslaubt
Das ist besser.
3. Provide the correct form of the auxiliary verb "haben" and the mast marticiple of the word in marenthesis:
Wir den Mann (suchen) : habe sesucht
No, this is incorrect. Check the subject-verb agreement of the auxiliary. Try again. Enter the auxiliary ONLY.
Your choice is: haben
But.
4. Put the following sentences into the present perfect tense by supplying the words for which blanks have been substituted:
Er kauft der Hutter Blumen. Er der Hutter Blumen : hat sekaufen
Leider falsch. The past participle is wrons. The past participle of regular weak verbs is formed by adding the prefix "se" and the suffix "t" to the verb stem. The suffix "et" is added if the stem ends in d, t, Cm or Cn, where C is any consonant other than 1 or r. Try again. Enter the past participle ONLY.
Your choice is: sekauft
Richtis.

2. Complete each of the following statements in the PRESENT PERFECT TENSE by choosing TWO appropriate verbs from the list which follows the statement. ALSO insert the correct form of the auxiliary verb "haben".

Meine Schwester ____ immer lieber ____ als ____.

VERBS: kochen wohnen lernen

Your choices are: haben sewohnt sekocht

The auxiliary is wrong.
Type in the correct form of the auxiliary verb DNLY.

Your choice is: hat

Das ist besser.
The first verb is wrons.
Try again. Fill in ALL of the blanks.

Your choices are: hat selernt sekocht

3. Select the appropriate verb for each sentence from the list given below.

glauben machen rauchen regnen

TYPE THE CORRESPONDING PAST PARTICIPLE AS REQUESTED.

Ich habe die Geschichte ____.

Your choice is: seresnet

You have chosen the wrong verb. Try again.

Your choice is: slaubt

You have formed the past participle wrong. Try again.

Your choice is: seslaubt

Sehr gut!

- 4. In the following three problems, construct two meaningful sentences each in the present perfect tense by adding one element from EACH CATEGORY (verb-phrase) appropriate to the specified subject.
- A. Der Gast (warten) sehr gut. Das Essen (schmecken) im Restaurant.

Sentence no. 1 :Der Gast hat im Restaurant schmeckt. You have used the wrong verb.
Try again.

Sentence no. 1 :Der Gast hat im Restaurant gewartet.

Sentence no. 2 :Das Essen hat sehr sut schmeckt.

Sentence no. 1 is correct.

The second sentence is incorrect because of:

wrong past participle

The correct sentence is:Das Essen hat sehr gut geschmeckt.

APPENDIX C
Criterion Measurement

German 132	PRESENT PERFECT TENSE OF	Name:
2-5/6-79	WEAK VERBS - TEST INSTRUMENT	
/ -		
	rcle the Correct Answer	
1. Der jung a. geli b. lieb c. lieb d. lieb	e en	· ·
a. gest b. gesa c. gele d. gepa	gt bt sst	
c. hat	und auf der Party viel n gelacht e lachen gelacht lachen	·•
a. habeb. habec. hat	Schule ich 20 Minuten auf ihn geantwortet gewartet gewartet gewartet	 •
5. Der Nach a. such b. such c. such d. gest	te len	lang
a. gegl b. gema c. geht d. gele	ert bt	
a. hat b. habe c. habe	sie bei der Firma Bauer arbeiten en gearbeitet en gearbeitet en arbeiten	?
8. Das Inte	rview im grossen Autogeschäft hat se	hr lange
a. gewe b. wart c. geze d. geda	en	

9•	Der Herr aus Italien bei uns in der Schule a. hat lernen b. habe gelernt c. hat gelernt d. haben gelernt
10.	Mein Vater und meine Mutter seit zwei Jahren in einem Einfamilienhaus a. haben gewohnt b. haben leben c. hat gelebt d. hat gelegt
11.	Ich habe die ganze Geschichte nicht a. glaubte b. geglaubt c. glaubt d. glaube
12.	Mein Onkel hat dem Touristen den Dom a. zeigt b. zeigen c. zeigte d. gezeigt
13.	Hoffentlich Ihnen das Essen bei uns gut a. haben gekocht b. hat gekocht c. hat geschmeckt d. hat gekauft
14.	Am Nachmittag habe ich mit meinem Freund im Park a. gespielt b. spielt c. spielen d. spiele
15.	Die Lebensmittel haben in der Schweiz mehr als in Amerika
	a. gewohnt b. gekostet c. geschmeckt d. schmeckt
16.	Bei schlechtem Wetter habe ich bei der Apotheke a. gesucht b. geregnet c. geparkt d. regnen
17.	Die Schüler haben eine Vorlesung an der Universität
	a. haben b. hat c. gehabt d. hatten

18.	a. b. c.	habeund meine Schwester hat gedauert gelacht geweint lacht gedauert geweint gelacht geweint		
19.	a. b.	Sie gestern neue Möbel? Haben kaufen Habt gekauft Haben gekauft Hatte gekauft		
20.	a. b. c.	hat die lange Reise nach Österreich endlich? geendet geregnet geparkt regnen		
(Q 21-25) Complete the Following Sentences in the Present Perfect Tense:				
21.	Wir	haben es nicht böse (meinen)		
22.	Waru	m haben die Gäste die Tür nicht? (öffnen)		
23. Das Mittagessen hat bei meiner Mutter lange (dauern)				
24.	Das	Gemüse hat mehr als die Milch (kosten)		
.25. Herr Lehmann hat seinen neuen Porsche vor dem Lebensmittel- geschäft				
(Q 26-30) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:				
		danken leben arbeiten		
		kaufen kochen passen		
		meinen regnen wohnen		
26.	0nke	l Karl hat vor einem Jahr ein neues Haus		
27.	Heut	e morgen haben mein Vater und ich bei meinem Onkel von		
8 bis	12	Uhr im Garten 28. Leider hat es		
ein bisschen 29. Während der Arbeit hat				
meine Tante etwas Gutes 30. Nach der Arbeit				
hat Onkel Karl uns				

(Q 31-35) Complete the Following Sentences in the Present Perfect Tense:							
31 .	31 ? (schmecken)						
32.	32. Ich seit vielen Jahren in der Schweiz						
33.	Was Hans und Inge de	en Professor	?				
34.	34. Wohin Sie das Küchenmesser ?						
35.	Unsere Nachbarin die :	Comaten in den 1	Kühlschrank				
(0,36	736-40) Complete the Following Perfect Tense by Choose from the List Provided raben g. spielen z. führen ko	sing the Appropr 1:	bauen stellen lernen				
36.	Auf meiner Universität in S	tuttgart	ich				
wirklich sehr gutes Deutsch 37. Im Jahre							
1950 die Universität eine neue Bibliothek							
38. Mein Freund Rolf und ich aber den Sportplatz							
besonders gern 39. Wir dort viel							
Fussball 40. Nach vielen Jahren							
Rolf gestern endlich seinen Eltern die Universität							

APPENDIX D

Miscellaneous

- 1. Student Study Guide Extract
- 2. Computer Terminal Operating Instructions
- 3. List of Weak Verbs

1. Student Study Guide Extract

Block III SA: 1. Read TB, p. 171, Schaum, p. 96 (present perfect tense of regular Recitation 11 1/2 Feb 1979 verbs) 2. Write TE, p. 184, Ex. E CA: 1. Introduction to present perfect
2. Listen/RCE, TB, pp. 164-165
(through Line 12, p. 165)
3. Pronunciation drill 4. Dialogue introduction, TB, p. 162 (first half) BREAK 5. ACE "Wir gehen ins Kino" 6. RCE "Familiensportfest" Dialogue completion exercise "Der Sport" SA: 1. Read TB, p. 172, <u>Schaum</u>, p. 97 (present perfect tense of irregular Recitation 12 5/6 Feb 1979 verbs) 2. Write TB, p. 183, Ex. C CA: 1. Written exercise/present perfect tense of regular weak verbs
2. Listen/RCE, TE, p. 165 (through Line 33) BREAK 3. ACE "Der Sport"
4. Dialogue introduction, TB, p. 162 (second half)
5. ACE "Vor dem Olympiastadion"
6. Written exercise/present perfect tense of irregular verbs

2. Computer Terminal Operating Instructions

COMPUTER-SUPPLEMENTED GERMAN PRACTICE Student Information Sheet

You have been chosen to participate in a research project involving the computer. In order to avoid possible problems, this instruction sheet has been prepared to give you some specific information about the computer terminal. Please read these instructions carefully before coming to the Education and Research Center (DFACS), Room 2E23, Fairchild Hall, in lieu of your regular German classroom, on Monday or Tuesday, 5 or 6 February 1979. Bring these instructions and a Number 2 pencil with you on the appropriate date.

Please \underline{do} not study the present perfect tense until after this experiment. On the day of the experiment, you will be assigned to a computer terminal in Room 2E23. The following will prepare you to use the computer:

- Press SHIFT key and hold. Then press CLEAR HOME key. This procedure will clear your screen.
- Type in USERCODE JPT0511 and then transmit it. To transmit, do the
 following: (1) Hit the ETX key, (2) hit the RTAB key, and (3) hit
 the XMT key. Follow this procedure anytime you are instructed to
 transmit. Wait until the computer acknowledges with a message.
- Now type ?+ and transmit it. This procedure will get you in the upber/lower case mode.
- Type E SEMANTIC or E STRUCTURE and transmit it. Your progress is now ready to run.
- 5. Read the instructions <u>carefully</u>. Type <u>slowly</u> and <u>accurately</u>. Pay attention to <u>capitalization</u> and <u>punctuation</u>. Instead of the "Umlaute," use the appropriate vowel followed by an "e." Example: # = ae (Maedchen).
- 6. Punch ETX and XMT after each page to continue.
- 7. If you make a typing error in your answer, or if you would like to change your answer, hit the RTAB key and type your answer again. A change must be made prior to data transmission.
- If you don't know the answer, make a guess. Don't waste too much time, however. If the answer is incorrect, the computer will tell you what is wrong and give you another try.
- 9. Upon completion of Exercise #5, type in BYE and transmit it.

You will then be given the posttest. Place your name on the test booklet. Please answer all questions, using a Number 2 pencil. Mark your digitek answer sheet for questions 1 through 20.

If you have any questions during the experiment, please raise your hand. Good luck and again many thanks for participating!

REINER H. SCHAEFFER, Captain, USAF

3. List of Weak Verbs

LIST OF WEAK VERBS

	APPEARS IN		APPEARS AS KEY IN			
VERB	STRUC	SEMAN	STRUCT	SEMANTIC		
	EXERC	EXERC	Sub-Test	SUB-TEST		
				·		
antworten	-	} -		-		
arbeiten	ļ x	(x	l x	x		
bauen	x	×	· •	x		
danken	-	-	-	X ·		
dauern	×	×	X	x		
enden] -	-	-	x		
fragen	×	×	×	-		
führen	-	•		-		
glauben	x	×	×	-		
haben	-	-	. .	x		
hören) <u>x</u>	×		<u>-</u>		
kaufen kochen	×	×	×	×		
kochen kosten	×	×	<u> </u>	×		
lachen	X	×	X .	×		
leben	X	ж .	X -	×		
	I :	-	(×		
legen lernen	X	X	X	_		
lieben	x	×	×	x		
machen	x	x	X -	•		
machen meinen	X	<u> </u>	x	-		
öffnen	1 -	_	l â	_		
parken	x	x	, x	x		
passen	_	~	}	^		
rauchen	x	x	_			
regnen	X	×	1	x		
sagen	x	x i		â		
schmecken	x	Î Î	×	â		
spielen	x	x i	â	î		
stellen	x	x	â	<u> </u>		
suchen	x	x	î x	_		
warten	x	x	1 [x		
weinen	Î	Ŷ	_	Î Î		
wohnen	ı î	x	x	x		
zeigen	x i	x	x	x l		
TOTAL: 35	25	25	20	20		

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